5.7 OUT-OF-BAND EMISSIONS

Test Requirement: FCC 47 CFR Part 15.323(d)
RSS-213 Issue 3, Section 5.8.1

Reference Method: ANSI C63.17-2013 Clause 6.1.6.2

Limit: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

FCC 47 CFR Part 15.323(d)

Emissions outside the band shall be attenuated below a reference power of 112 milliwatts as follows: 30 dB between the band and 1.25 MHz above or below the band; 50 dB between 1.25 and 2.5 MHz above or below the band; and 60 dB at 2.5 MHz or greater above or below the band.

RSS-213 Issue 3, Section 5.8.1

Emissions outside the band 1920-1930 MHz shall be attenuated below a reference power of 112 mW (-9.5 dBW) by at least:

- 30 dB between the band edges and 1.25 MHz above and below the band edges;
- 50 dB between 1.25 MHz and 2.5 MHz above or below the band edges; and
- 60 dB at 2.5 MHz or greater above or below the band edges.

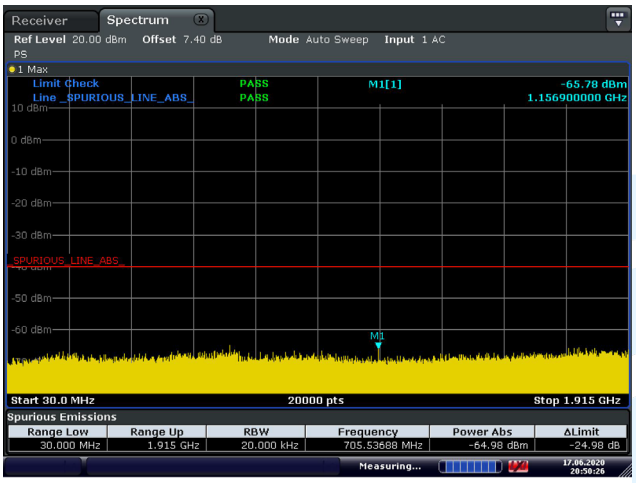
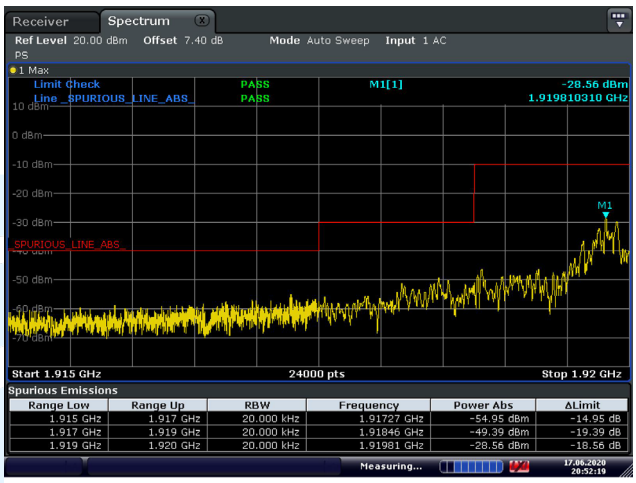
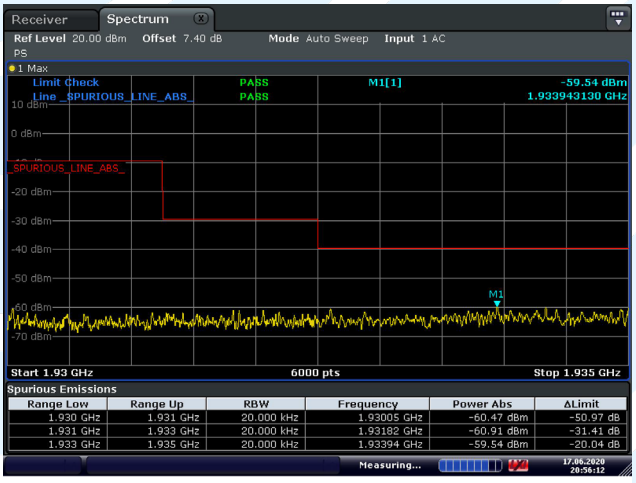
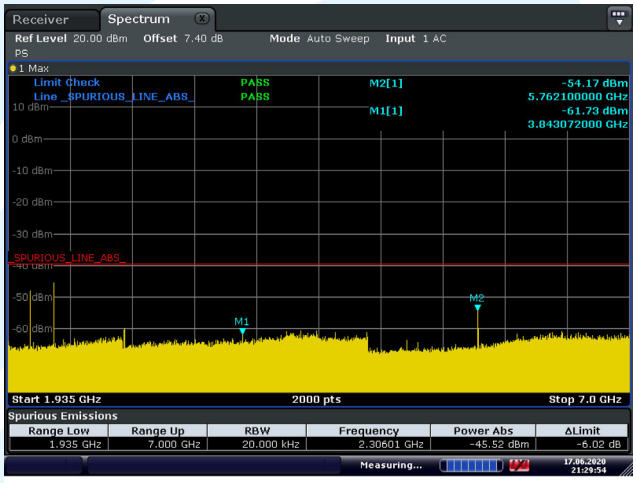
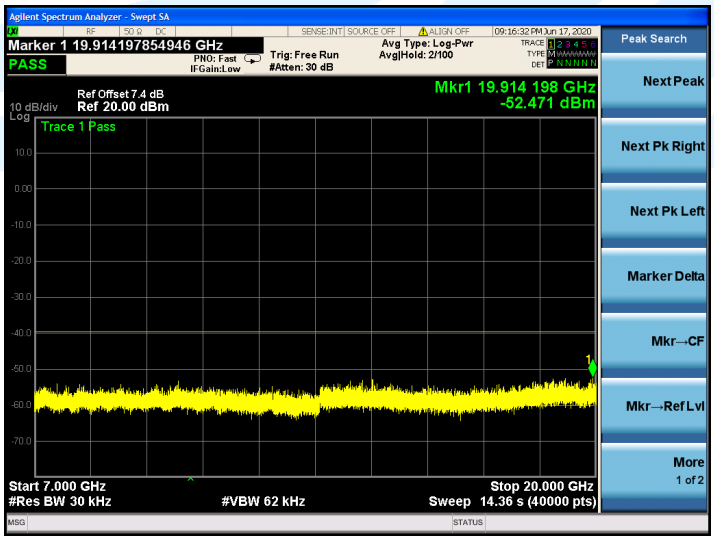
Test Procedure: ANSI C63.17-2013 Clause 6.1.6.2

Test Setup: Refer to section 4.4.3 for details.

Equipment Used: Refer to section 3 for details

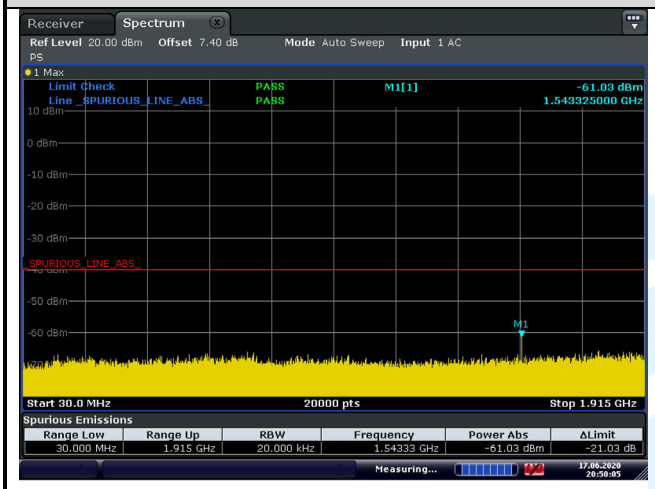
Test Results: Pass

The test plots as follows:

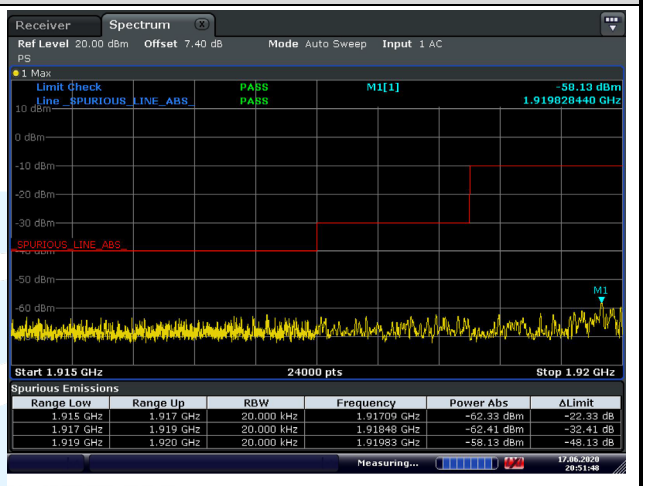
Out-of-band emissions_ Channel 4	
30 MHz - 1.915 GHz	1.915 GHz - 1.92 GHz
	
1.93 GHz - 1.935 GHz	1.935 GHz – 7 GHz
	
7 GHz – 20 GHz	
	

Out-of-band emissions_ Channel 2

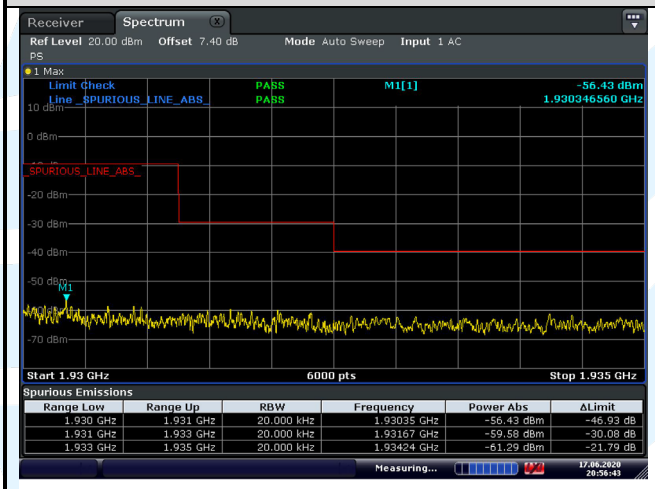
30 MHz - 1.915 GHz



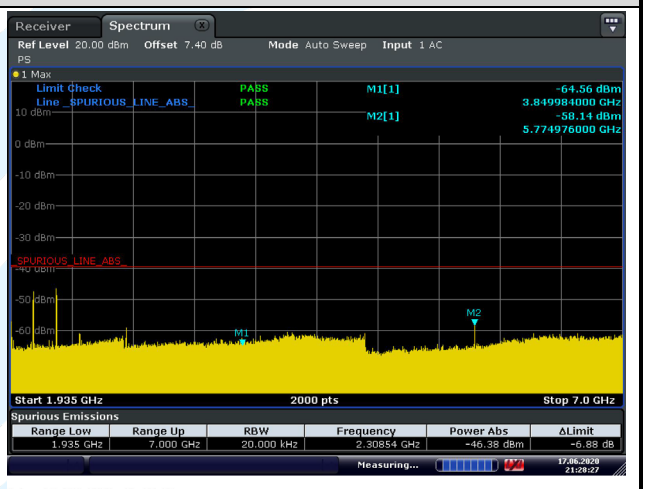
1.915 GHz - 1.92 GHz



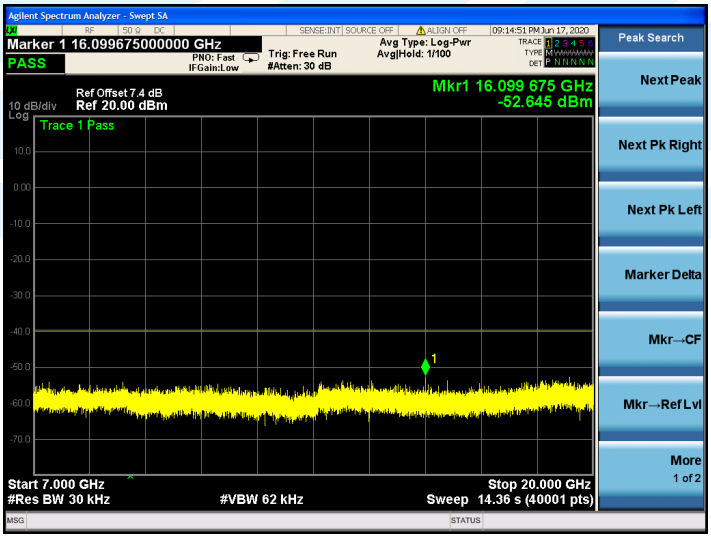
1.93 GHz - 1.935 GHz



1.935 GHz – 7 GHz

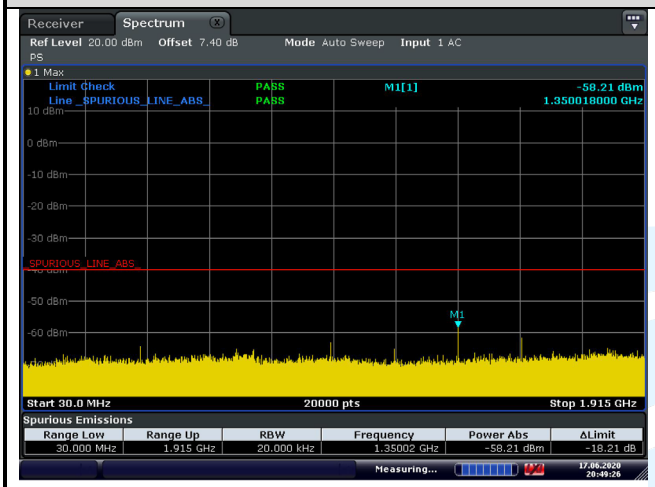


7 GHz – 20 GHz

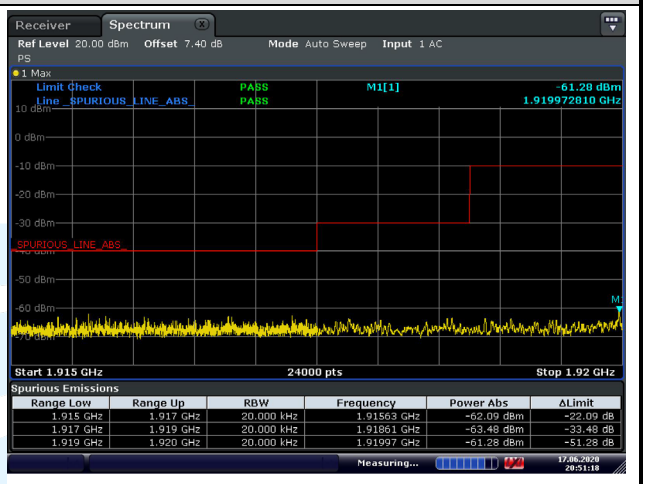


Out-of-band emissions_ Channel 0

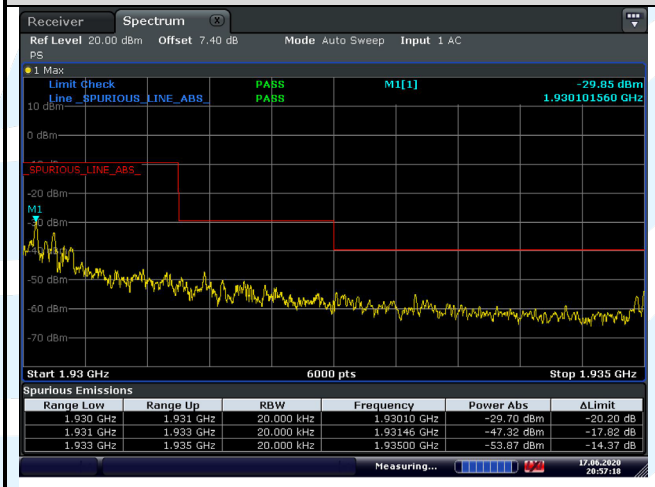
30 MHz - 1.915 GHz



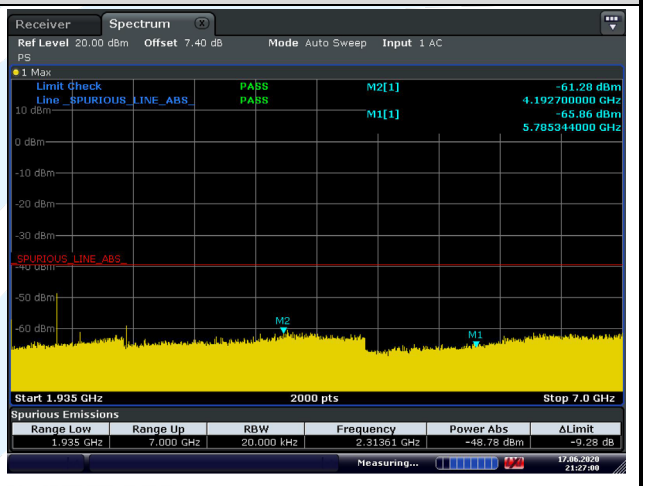
1.915 GHz - 1.92 GHz



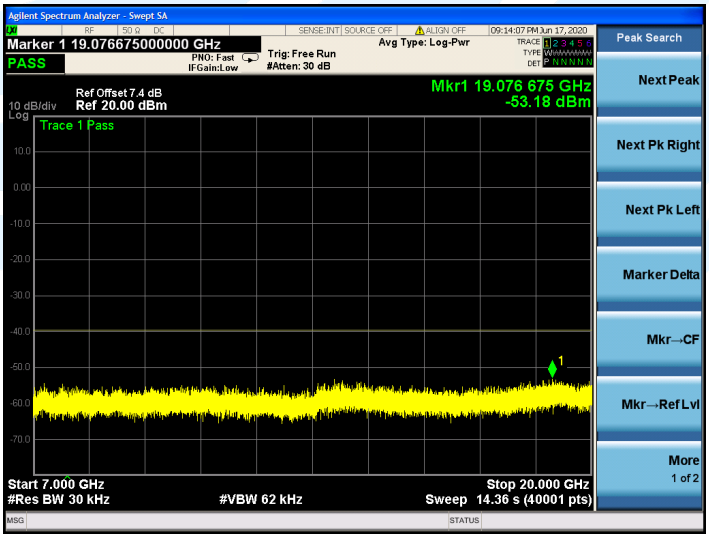
1.93 GHz - 1.935 GHz



1.935 GHz – 7 GHz



7 GHz – 20 GHz



Note 1: The BS spurious out-of-band transmission level is below the indicated limit.
Note 2: During the test RTX's modulation type was PSBR.

5.8 RADIATED EMISSIONS

Test Requirement: FCC 47 CFR Part 15.319(g)/ 15.109(a)/ 15.209(a) /15.323(d)
RSS-213 Issue 3, Section 5.8.1
RSS-Gen Issue 5, Section 8.9

Reference Method: ANSI C63.10-2013 Clause 11.11 & Clause 11.12

Limits:

Spurious Emissions

Frequency (MHz)	Field strength	Limit	Remark	Measurement distance (m)
30 -88	100 μV/m	40.0 μV/m	Quasi-peak	3
88 -216	150 μV/m	43.5 μV/m	Quasi-peak	3
216 -960	200 μV/m	46.0 μV/m	Quasi-peak	3
960-1000	500 μV/m	54.0 μV/m	Quasi-peak	3
1000 -1917.5	500 μV/m	54.0 μV/m	Average	3
1917.5 -1918.75	-39.5 dBm		Peak	N/A
1918.75 - 1920	-29.5 dBm		Peak	N/A
1930 - 1931.25	-29.5 dBm		Peak	N/A
1931.25 - 1932.5	-39.5 dBm		Peak	N/A
1932.5 - 20000	500 μV/m	54.0 μV/m	Average	3

Remark:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Test Setup: Refer to section 4.4.1 for details.

Test Procedures:

1. From 30 MHz to 1GHz test procedure as below:

1) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3) The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.
5) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6) If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

2. Above 1GHz test procedure as below:

1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter(Above 18GHz the distance is 1 meter and table is 1.5 meter).
2) Test the EUT in the lowest channel ,middle channel, the Highest channel
3) The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the Y axis positioning which it is worse case.
4) Repeat above procedures until all frequencies measured was complete.

Equipment Used: Refer to section 3 for details.
Test Result: Pass
The measurement data as follows:

Channel 4					
No.	**Frequency (MHz)**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Antenna Polaxis**
1	1912.094	-58.64	-39.5	-19.14	Horizontal
2	1917.550	-59.98	-29.5	-30.48	Horizontal
3	3843.072	-73.98	-39.5	-34.48	Horizontal
4	5764.608	-68.59	-39.5	-29.09	Horizontal
5	1916.779	-59.30	-39.5	-19.80	Vertical
6	1918.652	-60.27	-29.5	-30.77	Vertical
7	1919.699	-50.00	-9.5	-40.50	Vertical
8	3843.072	-74.19	-39.5	-34.69	Vertical
9	5764.608	-70.76	-39.5	-31.26	Vertical
10	7686.144	-67.02	-39.5	-27.52	Vertical

Channel 0					
No.	**Frequency (MHz)**	**Result (dBm)**	**Limit (dBm)**	**Margin (dB)**	**Antenna Polaxis**
1	1930.170	-47.18	-9.5	-37.68	Horizontal
2	1931.328	-59.24	-29.5	-29.74	Horizontal
3	1936.729	-59.57	-39.5	-20.07	Horizontal
4	1930.336	-52.88	-9.5	-43.38	Vertical
5	1932.154	-59.21	-29.5	-29.71	Vertical
6	1932.816	-58.85	-39.5	-19.35	Vertical
7	3856.896	-73.61	-39.5	-34.11	Vertical
8	5785.344	-69.47	-39.5	-29.97	Vertical
9	7713.792	-67.16	-39.5	-27.66	Vertical

Remark: Margin = Result – Limit

5.9 PEAK TRANSMIT POWER

Test Requirement: FCC 47 CFR Part 15.319(c)(e), 15.31(e)
RSS-213 Issue 3, Section 5.6

Reference Method: ANSI C63.17-2013 Clause 6.1.2

Limit:

FCC 47 CFR Part 15.319(c)
Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in hertz.

FCC 47 CFR Part 15.319(e)
The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

RSS-213 Issue 3, Section 5.6
Peak transmit power shall not exceed 100 μW multiplied by the square root of the occupied bandwidth in hertz. The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

Test Procedure: ANSI C63.17-2013 Clause 6.1.2

Test Setup: Refer to section 4.4.3 for details.

Equipment Used: Refer to section 3 for details

Test Results: Pass

FCC 47 CFR Part 15.319

Channel	Frequency (MHz)	Maximum Antenna Gain (dBi)	Minimum EBW (MHz)	Maximum Conducted Peak Transmit Power (dBm)	Limit (dBm)	Pass / Fail
4	1921.536	0	1.460	19.88	20.82 (Note 1, 2)	Pass
2	1924.992	0		19.95		Pass
0	1928.448	0		19.99		Pass

RSS-213 Issue 3, Section 5.6

Channel	Frequency (MHz)	Maximum Antenna Gain (dBi)	Minimum OBW (MHz)	Maximum Conducted Peak Transmit Power (dBm)	Limit (dBm)	Pass / Fail
4	1921.536	0	1.1897	19.88	20.38 (Note 1, 2)	Pass
2	1924.992	0		19.95		Pass
0	1928.448	0		19.99		Pass

Note:
1. Limit

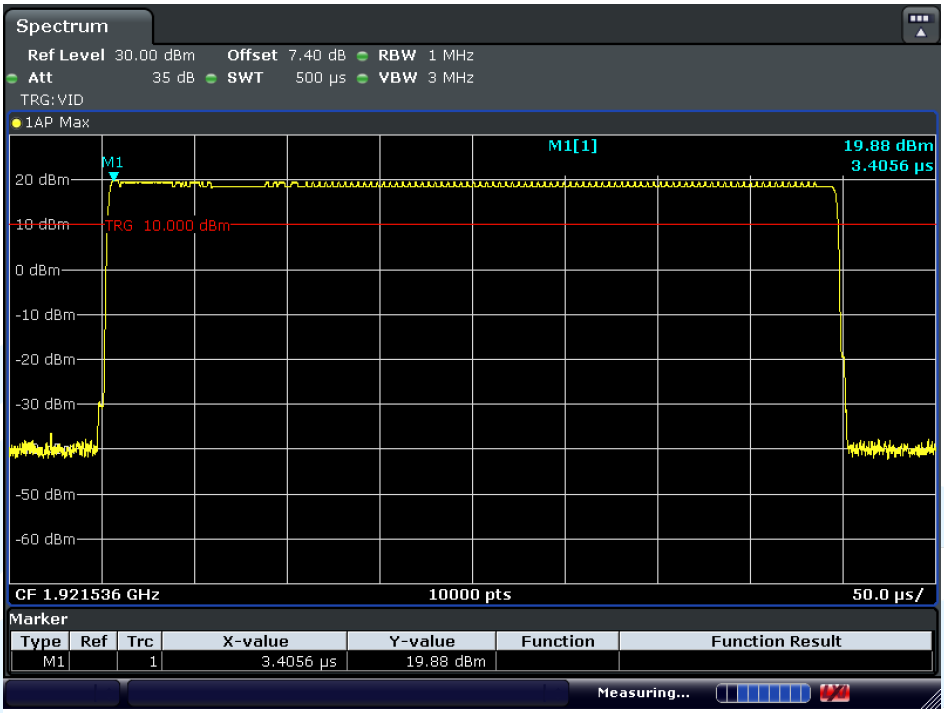
$$\text{Peak Transmit Power Limit [dBm]} = \begin{cases} P_{max} - (gain - 3),\ if\ gain > 3dBi \\ P_{max},\ if\ gain \le 3dBi \end{cases}$$

2. P_{max}

$$P_{max}\ [\text{dBm}] = 5\log(\text{EBW or OBW[Hz]}) - 10\text{dBm}$$

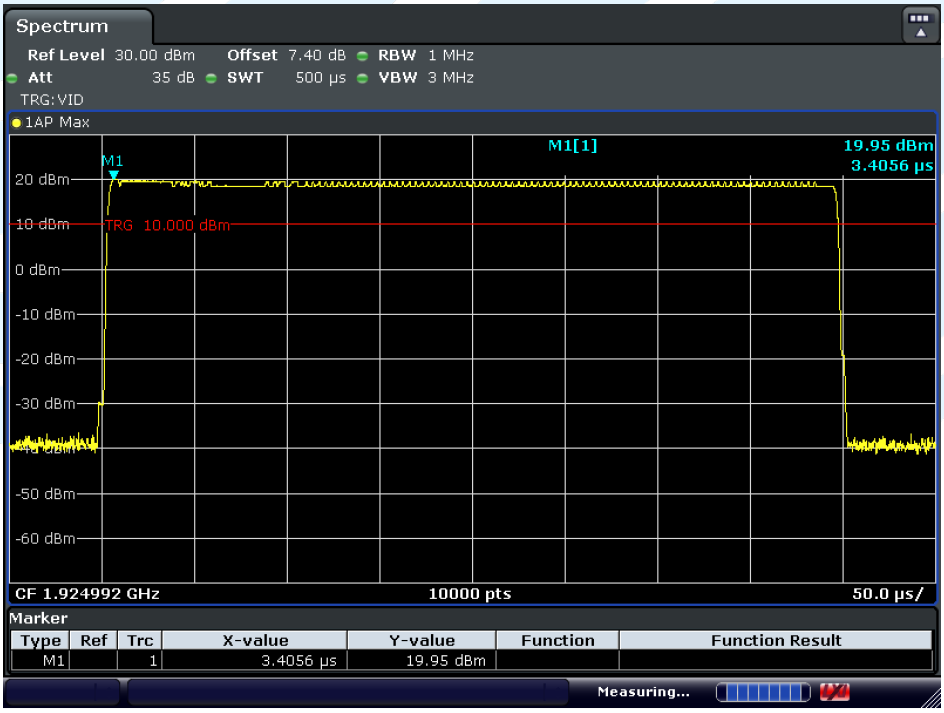
The test plots as follows:

Channel 4

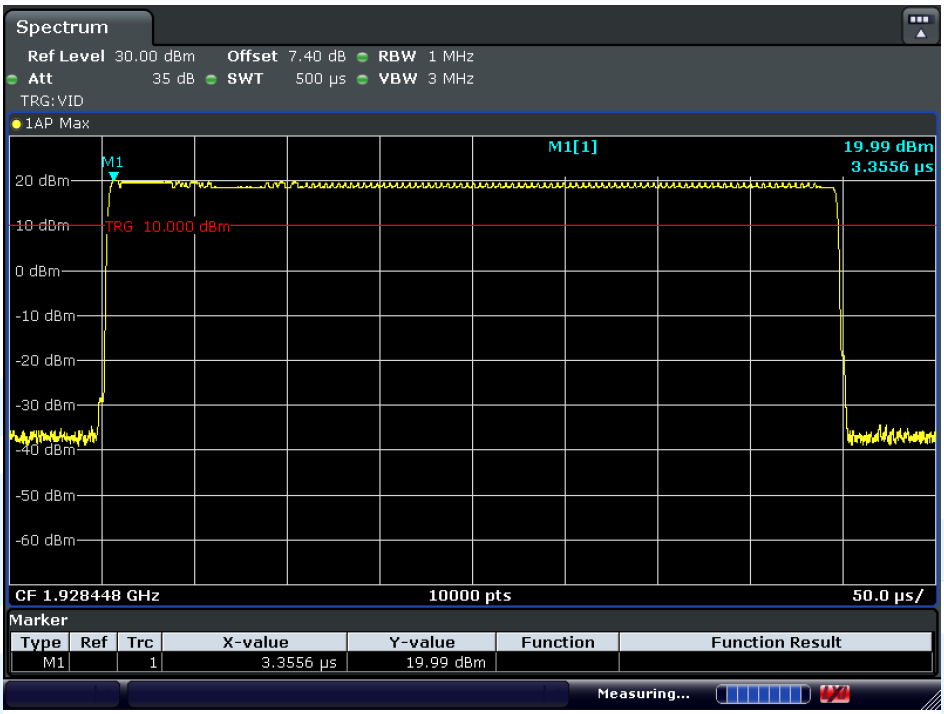


Date: 4.JUN.2020 17:14:35

Channel 2



Date: 4.JUN.2020 17:13:10

Channel 0


Spectrum
Ref Level 30.00 dBm Offset 7.40 dB RBW 1 MHz
Att 35 dB SWT 500 µs VBW 3 MHz
TRG:VID
1AP Max
M1[1] 19.99 dBm
3.3556 µs
M1
20 dBm
10 dBm
TRG 10.000 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
CF 1.928448 GHz
10000 pts
50.0 µs/
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 3.3556 µs 19.99 dBm
Measuring...
Date: 4.JUN.2020 17:13:59

5.10 POWER SPECTRAL DENSITY

Test Requirement: FCC 47 CFR Part 15.319(d)
RSS-213 Issue 3, Section 5.7

Reference Method: ANSI C63.17-2013 Clause 6.1.5

Limit:

FCC 47 CFR Part 15.319(d)
Power spectral density shall not exceed 3 milliwatts in any 3 kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3 kHz.

RSS-213 Issue 3, Section 5.7
The peak-hold power spectral density of transmitters shall not exceed 12 mW per any 3 kHz bandwidth.
As an alternative to the peak-hold power spectral density, the time-averaged power spectral density may be measured and it shall not exceed 3 mW per any 3 kHz bandwidth.

Test Procedure: ANSI C63.17-2013 Clause 6.1.5

Test Setup: Refer to section 4.4.3 for details.

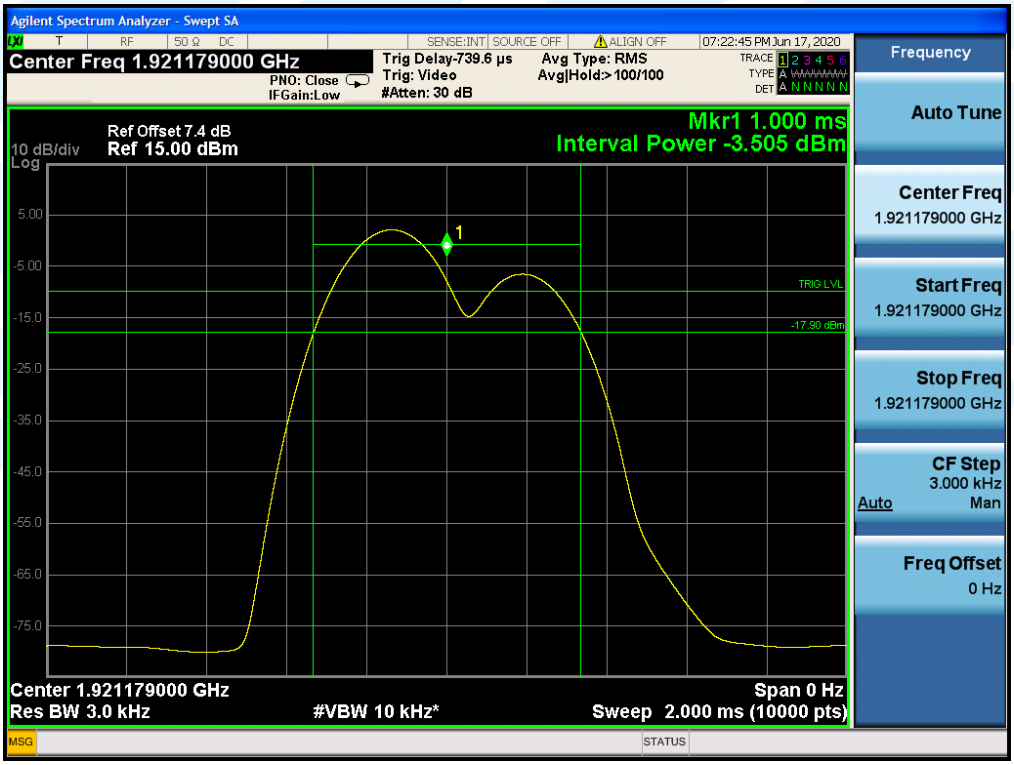
Equipment Used: Refer to section 3 for details

Test Results: Pass

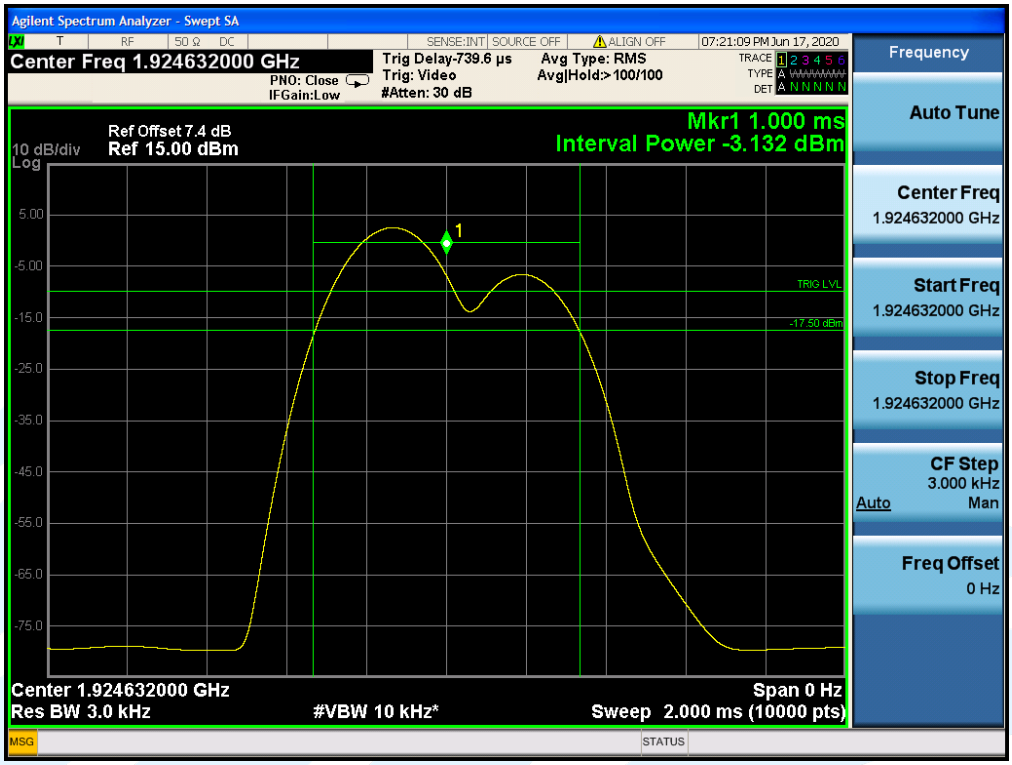
Channel	Frequency (MHz)	Measured PSD (dBm / 3kHz)	Measured PSD (mW / 3kHz)	Limit (mW / 3kHz)	Pass / Fail
4	1921.536	-3.505	0.446	⩽ 3.00	Pass
2	1924.992	-3.132	0.486		Pass
0	1928.448	-3.570	0.440		Pass

The test plots as follows:

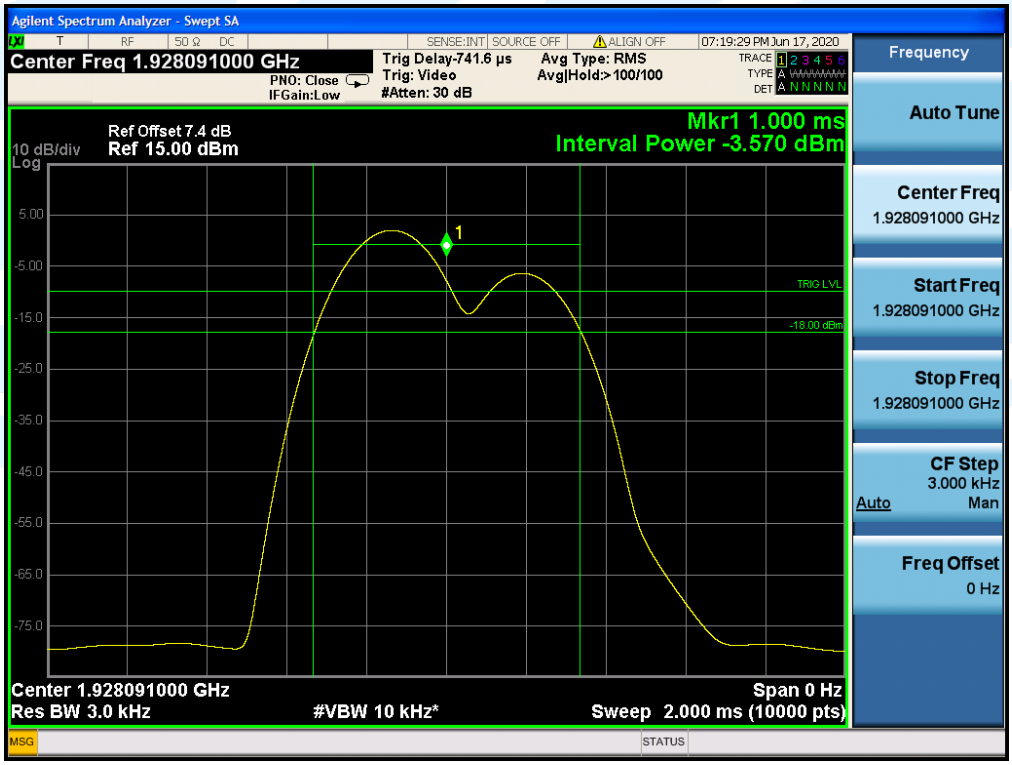
Channel 4



Channel 2



Channel 0



5.11 CARRIER FREQUENCY STABILITY

Test Requirement: FCC 47 CFR Part 15.323(f)
RSS-213 Issue 3, Section 5.3

Reference Method: ANSI C63.17-2013 Clause 6.2.1

Limit:

FCC 47 CFR Part 15.323(f)

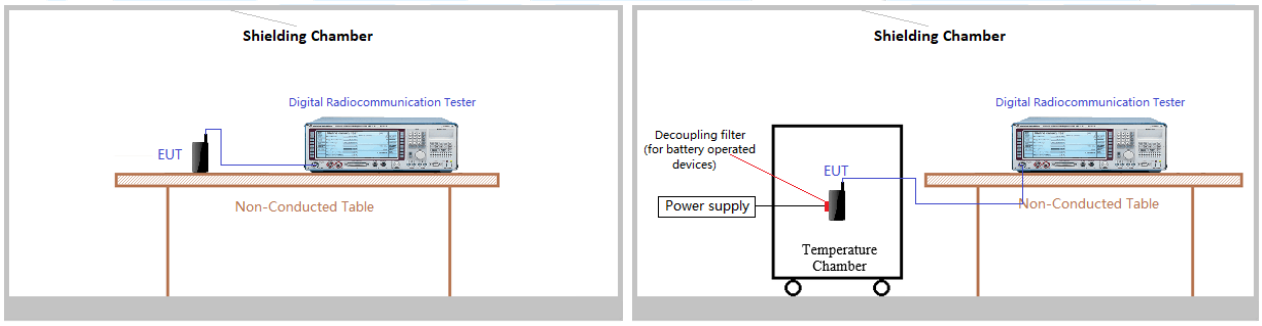
The frequency stability of the carrier frequency of the intentional radiator shall be maintained within ±10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of -20° to + 50 °C at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20 °C. For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage.

RSS-213 Issue 3, Section 5.3

The carrier frequency stability shall be maintained within ±10 ppm (±0.001%).

Test Procedure: ANSI C63.17-2013 Clause 6.2.1

Test Setup:



Equipment Used: Refer to section 3 for details

Test Results: Pass

Carrier Frequency Stability over Time

Supply Voltage	Temperature (℃)	Measured Frequency Offset Over an hour (ppm)		Limit (ppm)	Result
		Max.	Min.		
Nominal	+20	1.04	0.52	±10	Pass

Carrier Frequency Stability over Power Supply Voltage

Supply Voltage	Temperature (℃)	Measured Frequency Offset Over an hour (ppm)	Limit (ppm)	Result
85%	+20	1.04	±10	Pass
115%	+20	1.04	±10	Pass

Carrier Frequency Stability over Temperature

Supply Voltage	Temperature (℃)	Measured Frequency Offset Over an hour (ppm)	Limit (ppm)	Result
Nominal	-20	1.56	±10	Pass
Nominal	+50	1.04	±10	Pass

5.12 SPECIFIC REQUIREMENTS FOR UPCS

5.12.1 Monitoring Time

Test Requirement: FCC 47 CFR Part 15.323(c) (1)
RSS-213 Issue 3, Section 5.2 (1)

Immediately prior to initiating a transmission, devices must monitor the combined time and spectrum window that they intend to use to verify if the channel is free for at least 10 ms for systems designed to use a 10 ms or shorter frame period, or at least 20 ms for systems designed to use a 20 ms frame period.

Reference Method: ANSI C63.17-2013 Clause 7.3.4, 7.5

Test Setup: Refer to section 4.4.3 for details.

Equipment Used: Refer to section 3 for details.

Test Results: Pass

Initial transmit channel and Interferer level	Final transmit Channel	Results
Apply the interference on f1 at level T_U+U_M, and no interference on f2. Initiate transmission and verify the transmission on f2.	f2	Pass
Apply the interference on f2 at level T_U+U_M, at the same time, no interference on f1. After about 20ms, initiate transmission and verify the transmission on f1.	f1	Pass

5.12.2 Lowest Monitoring Threshold

Test Requirement: FCC 47 CFR Part 15.323(c) (2)
RSS-213 Issue 3, Section 5.2(2)

The monitoring threshold must not be more than 30 dB above the thermal noise power (KTB) of a bandwidth equivalent to the occupied bandwidth of the device.

Reference Method: ANSI C63.17-2013 Clause 7.3.1

Test Result: Not Applicable

5.12.3 Acknowledgements and Transmission Duration

Test Requirement: FCC 47 CFR Part 15.323(c) (3)(4)
RSS-213 Issue 3, Section 5.2(3)(4)

Occupation of the same combined time and spectrum windows by a device or group of cooperating devices continuously over a period of time longer than 8 h is not permitted without repeating the access criteria.

Once access to specific combined time and spectrum windows is obtained, an acknowledgement from a system participant must be received by the initiating transmitter within 1 s or transmission must cease.

Periodic acknowledgements must be received at least every 30 s or transmission must cease.

Channels used exclusively for control and signalling information may transmit continuously for 30 s without receiving an acknowledgement, at which time the access criteria must be repeated.

Reference Method: ANSI C63.17-2013 Clause 8.2.1, 8.2.2

Test Result: Pass

Refer to ANSIC63.17 clause 8.2.1	Observation	Results
Initial transmission without acknowledgements	Not applicable for EUT that transmits control and signaling information	N/A
Transmission time after loss of acknowledgements	10.0	Pass

Refer to ANSIC63.17 clause 8.2.2	Observation	Results
Transmission duration on same time and frequency window	Only for initiating device that controls which time slot is used	N/A

5.12.4 Least Interfered Channel (LIC) Selection

Test Requirement: FCC 47 CFR Part 15.323(c) (5)
RSS-213 Issue 3, Section 5.2(5)

If access to spectrum is not available as determined by the above, and a minimum of 20 duplex system access channels are defined for the system, the time and spectrum windows with the lowest power level may be accessed.

A device utilizing the provisions of this paragraph 5.2(5) must have monitored all access channels defined for its system within the last 10 s and must verify, within the 20 ms (40 ms for devices designed to use a 20 ms frame period) immediately preceding actual channel access, that the detected power of the selected time and spectrum windows is no higher than the previously detected value.

The power measurement resolution bandwidth for this comparison must be accurate to within 6 dB.

No device or group of cooperating devices located within 1 m of each other shall during any frame period occupy more than 6 MHz of aggregate bandwidth, or alternatively, more than one third of the time and spectrum windows defined by the system.

Calculation of monitoring threshold limits for isochroous devices:

Lowest threshold: $T_L = -174 + 10\log_{10}B + M_u + P_{MAX}-P_{EUT}$ [dBm]
Upper threshold: $T_U = -174 + 10\log_{10}B + M_u + P_{MAX}-P_{EUT}$ [dBm]

M_u = dB the threshold may exceed thermal noise (30 for T_L& 50 for T_U)
P_{max} [dBm] $= 5 \log B - 10$dBm
P_{EUT} = Transmitted power [dBm]

B: For FCC Part 15D, B = Emission bandwidth [Hz],
For RSS-213 , B = Occupied Bandwidth [Hz]

Monitor Threshold	B (MHz)		M_U (dB)	P_{MAX} (dBm)		P_{EUT} (dBm)	Threshold (dBm)	
	FCC	IC		FCC	IC		FCC	IC
T_L	1.460	1.1897	30	20.82	20.38	19.99	-81.53	-82.56
T_U			50			19.99	-61.53	-62.56

The EUT must not transmit until the interference level is less than or equal to: Measured Threshold Level ≤ TU Where: TU=Upper threshold level

Reference Method: ANSI C63.17-2013 Clause 7.3.2, 7.3.3, 7.3.4

Equipment Used: Refer to section 3 for details.

Test Result: Pass

Monitor threshold	Measured Threshold Level	Limit (dBm)	
		FCC	IC
Lowest Threshold (dBm)	N/A	-81.53	-82.56
Upper Threshold (dBm)	N/A	-61.53	-62.56

Note: N/A Not applicable- EUT which supports at least of 40 duplex system access channels and implements Least Interfered Channel (LIC) algorithm is permitted to use an upper monitoring threshold.

5.12.5 Random waiting

Test Requirement: FCC 47 CFR Part 15.323(c) (6)
RSS-213 Issue 3, Section 5.2(6)

If the selected combined time and spectrum windows are unavailable, the device may either monitor and select different windows or seek to use the same windows after waiting an amount of time, randomly chosen from a uniform random distribution between 10 and 150 ms, commencing from the time when the channel becomes available.

Reference Method: ANSI C63.17-2013 Clause 8.1.3

Test Result: The manufacturer declares that this provision is not utilized by the EUT

5.12.6 Monitoring Bandwidth

Test Requirement: FCC 47 CFR Part 15.323(c) (7)
RSS-213 Issue 3, Section 5.2(7)

The monitoring system bandwidth must be equal to or greater than the occupied bandwidth of the intended transmission. Note: Testing of the monitoring system bandwidth is not required if the designed bandwidth from the manufacturer is available and given in the test report.

The maximum reaction time of the monitor shall be less than $50\sqrt{1.25/\text{EBW or OBW[MHz]}}\mu s$ for signals at the applicable threshold level but shall not be required to be less than 50 μ s.

If a signal of 6 dB or more above the threshold level is detected, the maximum reaction time shall be $35\sqrt{1.25/\text{EBW or OBW[MHz]}}\mu s$ but shall not be required to be less than 35 μ s.

Reference Method: ANSI C63.17-2013 Clause 7.5

Equipment Used: Refer to section 3 for details.

Test Result:

For FCC 47 CFR Part 15.323(c)(7)

Channel	Emission Bandwidth (MHz)	Pulse width from Bandwidth (μs)	Pulse width for test (μs)	Connection possible	Result
4	1.460	$50\sqrt{1.25/\text{EBW [MHz]}}$ = 46.26	50	No	Pass
		$35\sqrt{1.25/\text{EBW [MHz]}}$ = 32.38	35	No	Pass
0	1.462	$50\sqrt{1.25/\text{EBW [MHz]}}$ = 46.23	50	No	Pass
		$35\sqrt{1.25/\text{EBW [MHz]}}$ = 32.36	35	No	Pass

RSS-213 Issue 3, Section 5.2(7)

Channel	Emission Bandwidth (MHz)	Pulse width from Bandwidth (μs)	Pulse width for test (μs)	Connection possible	Result
4	1.1912	$50\sqrt{1.25/\text{OBW [MHz]}} = 50$	50	No	Pass
		$35\sqrt{1.25/\text{OBW [MHz]}} = 35$	35	No	Pass
0	1.1918	$50\sqrt{1.25/\text{OBW [MHz]}} = 50$	50	No	Pass
		$35\sqrt{1.25/\text{OBW [MHz]}} = 35$	35	No	Pass

5.12.7 Monitoring Antenna

Test Requirement: FCC 47 CFR Part 15.323(c) (8) (9)
RSS-213 Issue 3, Section 5.2(8) (9)

FCC 47 CFR Part 15.323(c)(8) & RSS-213 Issue 3, Section 5.2(8)

The monitoring system shall use the same antenna used for transmission, or an antenna that yields equivalent reception at that location.

FCC 47 CFR Part 15.323(c)(9) & RSS-213 Issue 3, Section 5.2(9)

Devices that have a power output lower than the maximum permitted under this standard may increase their detection threshold by 1 dB for each 1 dB that the transmitter power is below the maximum permitted.

Reference Method: ANSI C63.17-2013 paragraph 4

Result:

FCC 47 CFR Part 15.323(c)(8) & RSS-213 Issue 3, Section 5.2(8)

The antenna of the EUT used for transmission is the same interior antenna that used for monitoring.

FCC 47 CFR Part 15.323(c)(9) & RSS-213 Issue 3, Section 5.2(9)

Not Applicable

5.12.8 Dual Access Criteria Check

Test Requirement: FCC 47 CFR Part 15.323(c) (10)
RSS-213 Issue 3, Section 5.2(10)

A device initiating a communication (hereafter called an initiating device) may attempt to establish a duplex connection by monitoring both its intended transmit and receive time and spectrum windows.

If both the intended transmit and receive time and spectrum windows meet the access criteria, then the initiating device can initiate a transmission in the intended transmit time and spectrum window.

If the power detected by the responding device can be decoded as a duplex connection signal from the initiating device, then the responding device may immediately begin transmitting in the receive time and spectrum window monitored by the initiating device.

Reference Method: ANSI C63.17-2013 Clause 8.3.1, 8.3.2

Test Result:

EUT that do NOT implements the LIC procedure:

ANSI C63.17 clause 8.3.1	Observation	Result
b) EUT is restricted to a single carrier f1 for TDMA systems. The Test is Pass if EUT can transmit	EUT can transmit	Pass
c) d) Interference at level T_L+ U_M on all timeslots except one receive slot where interference is at least 10 dB below T_L	No connection possible	N/A
e) f) Interference at level T_L+ U_M on all timeslots except one transmit slot where interference is at least 10 dB below T_L	No connection possible	N/A

EUTs that implements the LIC procedure:

ANSI C63.17 clause 8.3.1	Observation	Result
b) EUT is restricted to a single carrier f1 for TDMA systems. The Test is Pass if EUT can transmit	EUT can transmit	Pass
c) d) Transmission on interference-free receive time/spectrum window	Connected on the target Rx window and its duplex mate.	Pass
e) f) Transmission on interference-free transmit time/spectrum window	Connected on the target Rx window and its duplex mate.	Pass

5.12.9 Alternative monitoring interval for co-located devices

Test Requirement: FCC 47 CFR Part 15.323(c) (11)
RSS-213 Issue 3, Section 5.2(11)

An initiating device that is prevented from monitoring during its intended transmit window due to monitoring system blocking from the transmissions of a co-located (within 1 m) transmitter of the same system, may monitor the portions of the time and spectrum window in which they are to receive over a period of at least 10 ms.

The monitored time and spectrum window must total at least 50% of the 10 ms frame interval and the monitored spectrum must be within 1.25 MHz of the centre frequency of channel(s) already occupied by that device or co-located cooperating devices.

If the access criteria are met for the intended receive time and spectrum window under the above conditions, then transmission in the intended transmit window by the initiating device may commence.

Reference Method: ANSI C63.17-2013 Clause 8.4

Test Result:

The manufacturer declares that this provision is not utilized by the EUT.

5.12.10 Frame Repetition Stability and Period and Jitter

Test Requirement: FCC 47 CFR Part 15.323(c) (13)
RSS-213 Issue 3, Section 5.2(13)

The frame period (a set of consecutive time slots in which the position of each time slot can be identified by reference to a synchronizing source) of an intentional radiator operating in this sub-band shall be 20 ms/X where X is a positive whole number.

Each device that implements time division for the purpose of maintaining a duplex connection on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 50 parts per million (ppm).

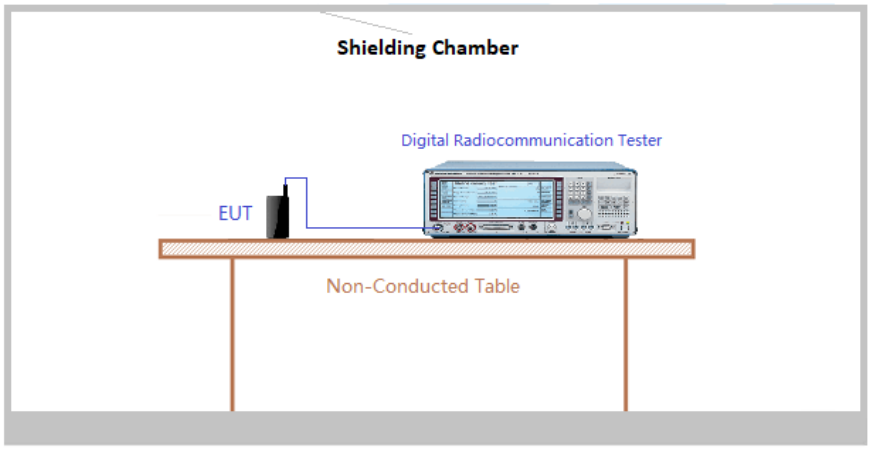
Each device that further divides access in time in order to support multiple communication links on a given frequency carrier shall maintain a frame repetition rate with a frequency stability of at least 10 ppm.

The jitter (time-related, abrupt, spurious variations in the duration of the frame interval) introduced at the 2 ends of such a communication link shall not exceed 25 μs for any 2 consecutive transmissions.

Transmissions shall be continuous in every time and spectrum window during the frame period defined for the device.

Reference Method: ANSI C63.17-2013 Clause 6.2.2, 6.2.3

Test Setup:



Equipment Used: Refer to section 3 for details.

Test Results: Pass

Carrier Frequency (MHz)	Frame Jitter (us)		Limit
	min	max	
1924.992	-0.68	0.71	±25

5.13 CONDUCTED EMISSION

Test Requirement: 47 CFR Part 15C Section 15.207
RSS-213 Issue 3, Section 5.4

Reference Method: ANSI C63.10-2013 Section 6.2

Limits:

Frequency range (MHz)	Limits (dB(μV))	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Remark:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

Test Setup: Refer to section 4.4.2 for details.

Test Procedures:

Test frequency range :150KHz-30MHz

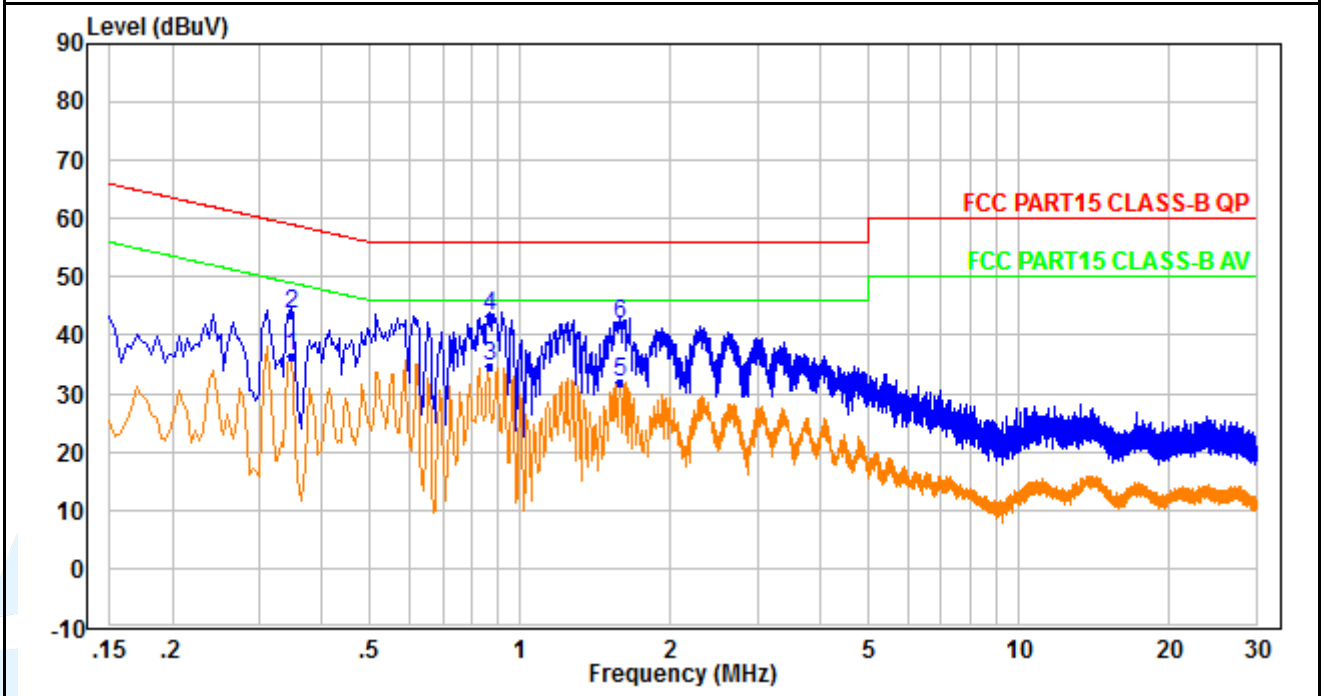
1) The mains terminal disturbance voltage test was conducted in a shielded room.
2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Equipment Used: Refer to section 3 for details.

Test Result: Pass

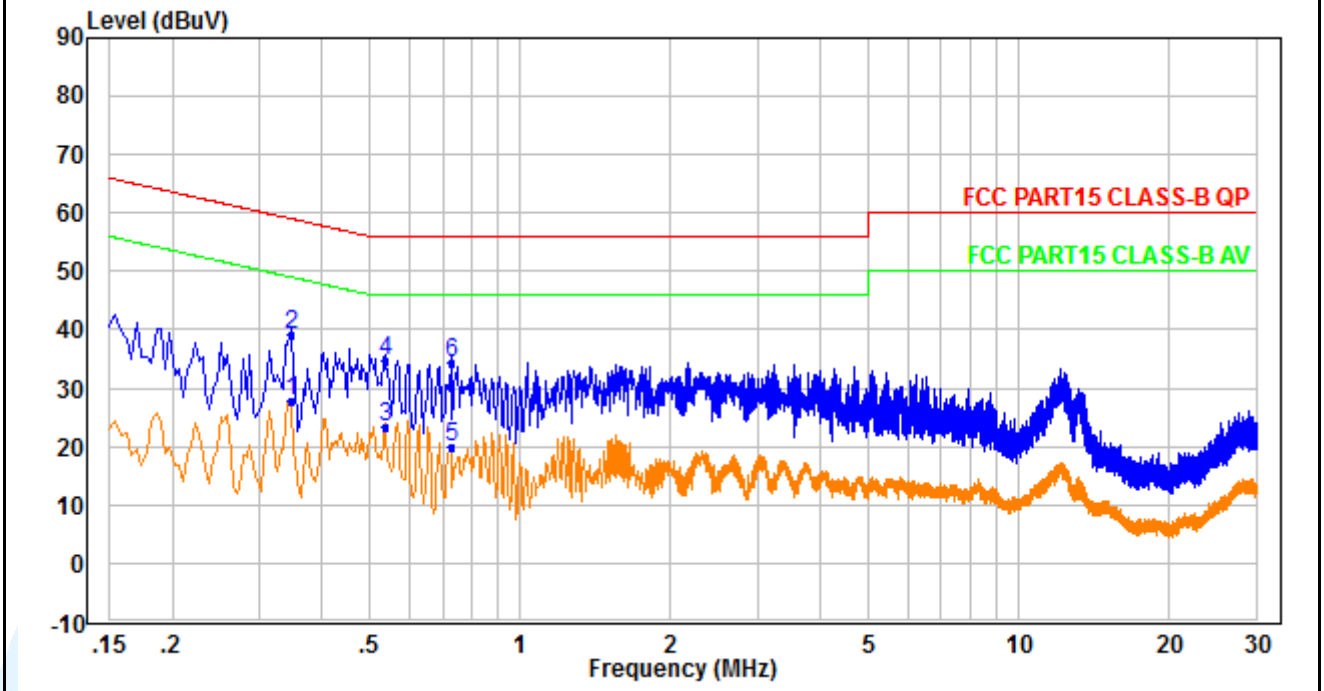
The measurement data as follows:
Quasi Peak and Average:
Mode: DECT Link

Live Line



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.346	27.07	9.29	36.36	49.06	-12.70	Average
2	0.346	34.19	9.29	43.48	59.06	-15.58	QP
3	0.870	25.20	9.50	34.70	46.00	-11.30	Average
4	0.870	33.62	9.50	43.12	56.00	-12.88	QP
5	1.586	22.32	9.61	31.93	46.00	-14.07	Average
6	1.586	32.43	9.61	42.04	56.00	-13.96	QP

Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.346	18.40	9.27	27.67	49.06	-21.39	Average
2	0.346	29.79	9.27	39.06	59.06	-20.00	QP
3	0.534	14.03	9.43	23.46	46.00	-22.54	Average
4	0.534	25.34	9.43	34.77	56.00	-21.23	QP
5*	0.726	10.37	9.50	19.87	46.00	-26.13	Average
6	0.726	24.84	9.50	34.34	56.00	-21.66	QP

Remark:

1. Correct Factor = LISN Factor + Cable Loss + Pulse Limiter Factor, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result - Limit
4. An initial pre-scan was performed on the Phase and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.
5. All possible modes of operation were investigated, and testing at two nominal voltages of 240V/50Hz and 120V/60Hz, only the worst case emissions reported.

APPENDIX 1 PHOTOS OF TEST SETUP

See test photos attached in Appendix 1 for the actual connections between Product and support equipment.

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

*** End of Report ***